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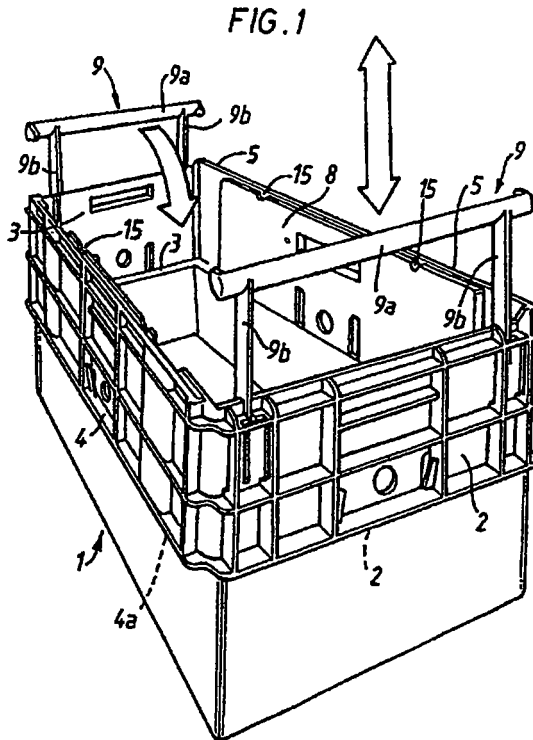
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GB 2124588 A US 4095711 A US 4054223 A

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**(54) Abstract Title
Container**

(57) A stackable nesting container has handles (9) engaged with slots formed in side walls of the container so that the handles (9) can slide in a plane parallel to the side walls between a load bearing position and a stowed position by sliding along the slots. From the extended, load bearing position the handles (9) may be pivoted over the top of the container to support an overlying container.



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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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FIG. 1

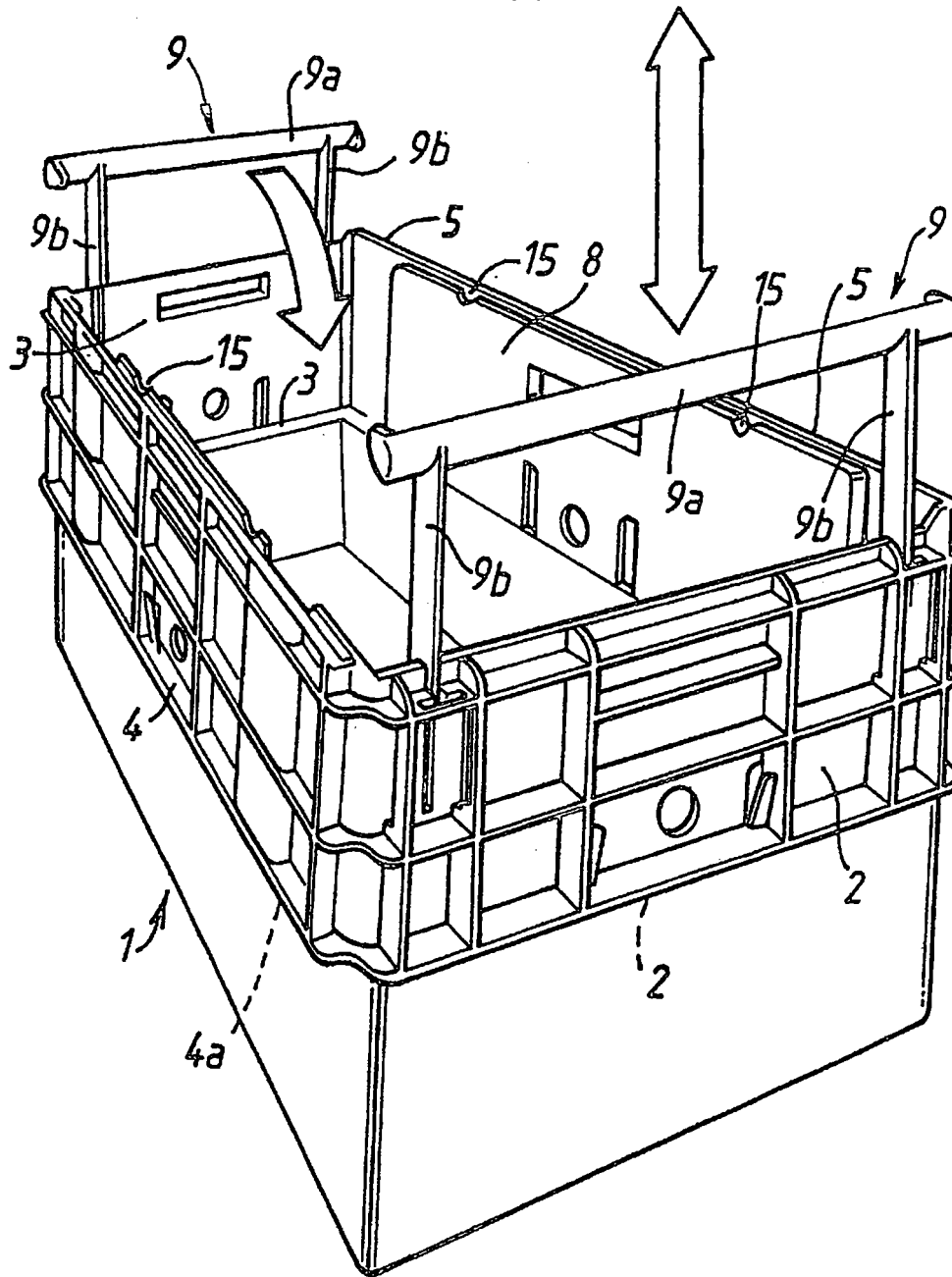
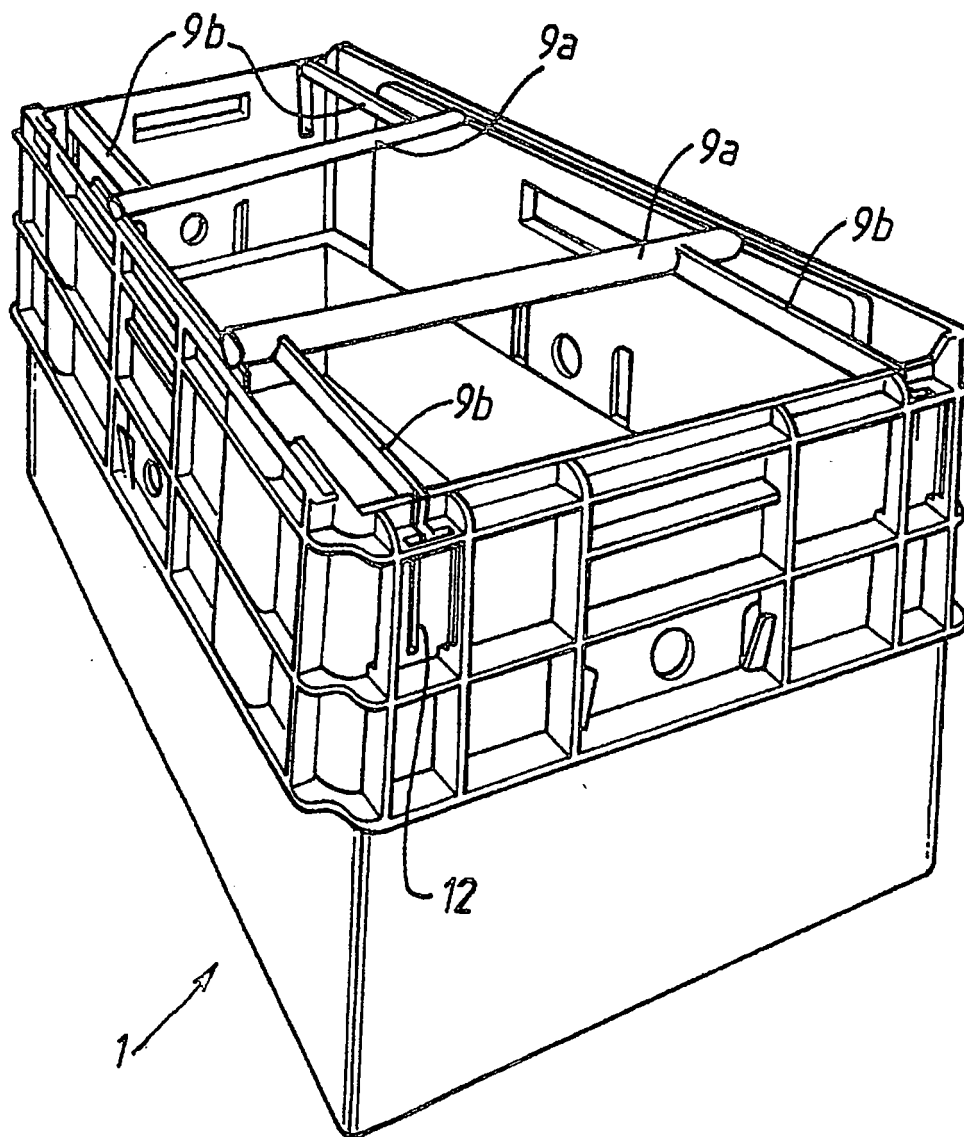


FIG. 3



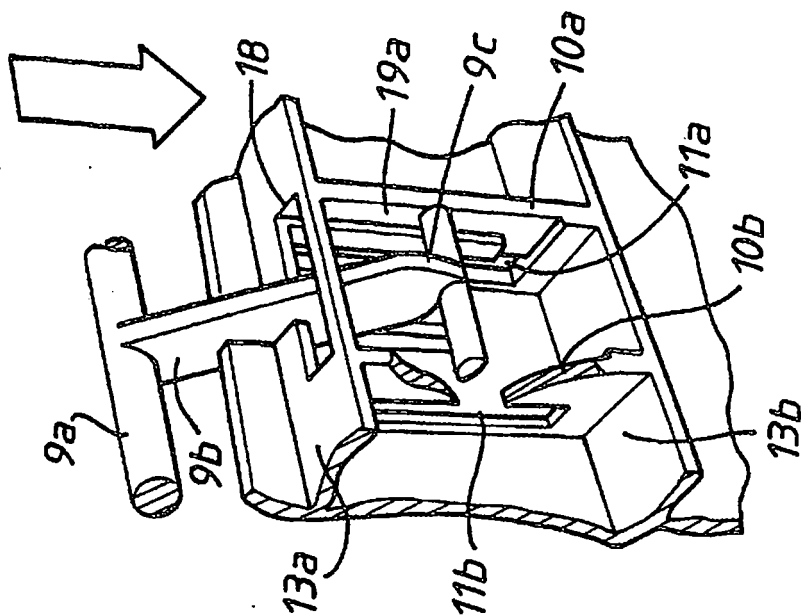


FIG. 4B

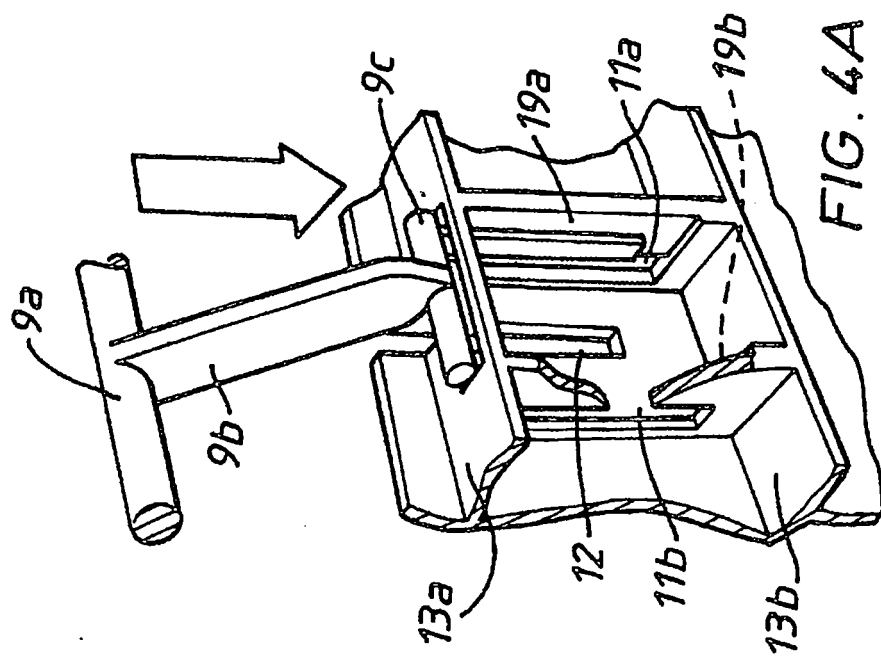
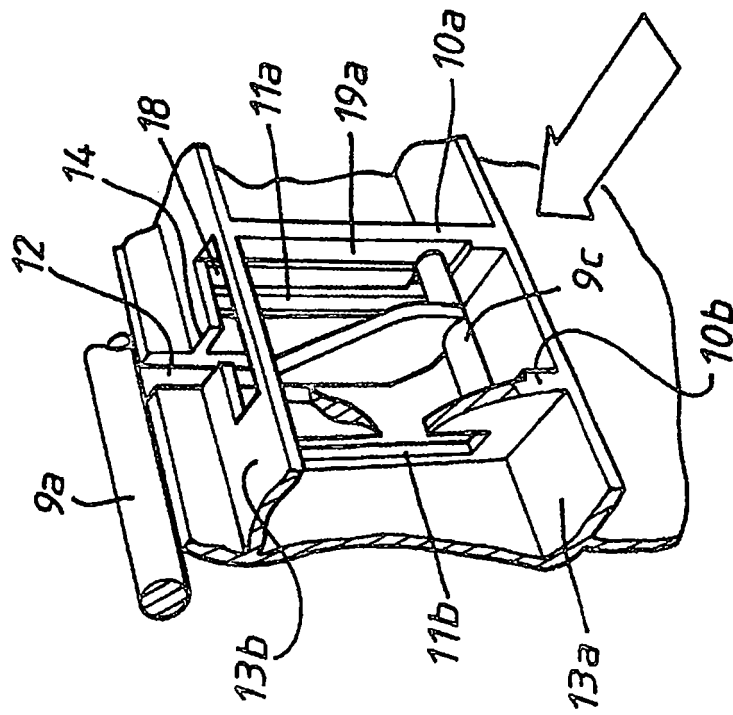


FIG. 4A

FIG. 4C



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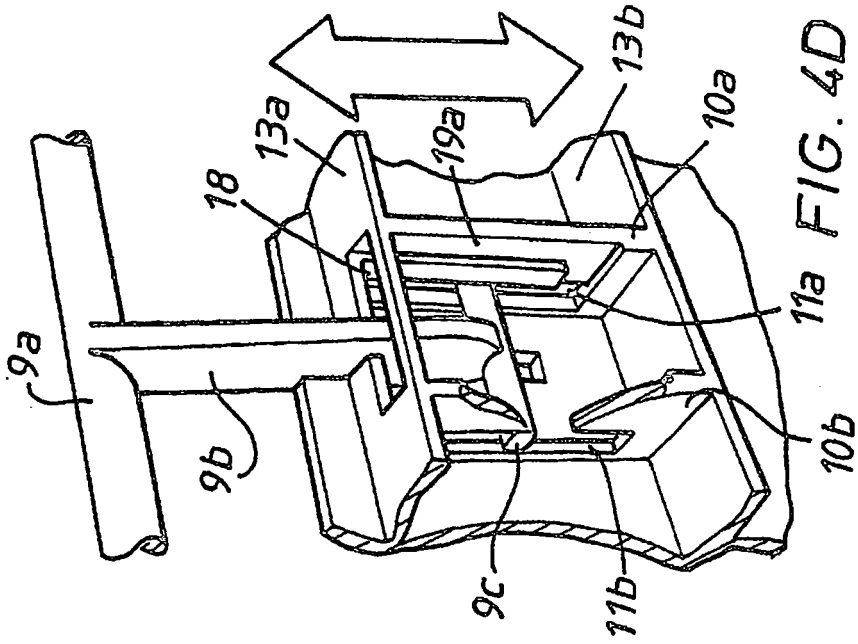
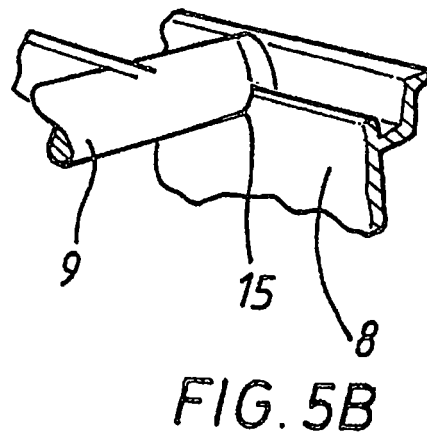
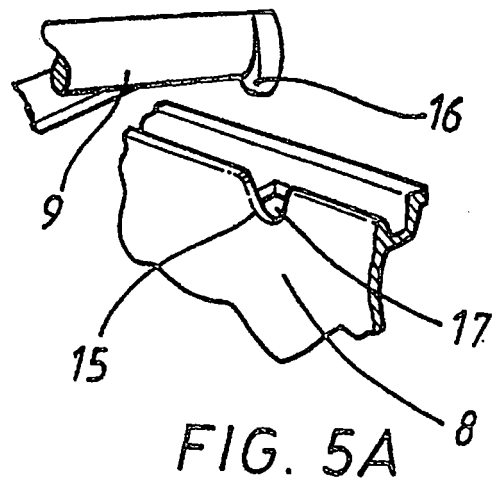


FIG. 4D



Container

Field of Invention

This invention relates to a container having carrying handles and particularly relates to a nestable stacking container having two carrying handles.

Brief Description of Prior Art

Nestable stacking containers are well known. These containers are generally substantially rectangular in plan and are shaped so that the containers can either be stacked into a column when full such that all of the weight of each container bears entirely upon the container below and not upon the contents of the container or be stacked into a nested stack when empty so that a part of each container fits inside the container below in order to minimise the space required for the storage and/or transport of empty containers. Containers of this type can be fitted with lids but are generally open topped because when full containers are stacked in a column so the base of each container provides a cover for the open top of the container below.

One particular type of nestable stacking container is a so-called 180° stacking container in which the base and outer profile of the lower portion of each container and the internal profile of the upper portion of each container are such that when two containers are stacked with the same facing the upper container will nest inside the lower container and when they are stacked with opposite orientation the base of the upper container rests on the tops of the sides of the lower container.

It is useful to provide containers with carrying handles to allow the containers to be easily moved around manually. However, known handle arrangements have a number of

disadvantages. Fixed handles significantly increase the space required to store or transport the containers and can make it difficult to stack stackable containers. As a result handles which can move between a first deployed load carrying position and a second stowed position have been used and in the field of nestable stacking containers handles have been used which can be positioned to control whether the containers form a column or a nested stack.

Known movable handles have a disadvantage that generally, space is required around the container to allow the handles to be moved from a stowed position to a load carrying position and this can be inconvenient when storing and moving containers. Further, where containers are to be stacked, in practice it is desirable to be able to place one end of a first container on a second container and then slide the first container into position on top of the second container. The provision of handles of the lower container generally makes this impossible because the lower surface of the first container catches in the handles. This is a particular problem for nestable stacking containers in which the stowed handles of a lower container support an upper container or where the position of the handles controls whether the containers form a column or a nested stack.

Objects and advantages of the invention

This invention is intended to overcome the above disadvantages, at least in part.

This invention provides a container comprising at least two side walls and two handles, each handle being slidably attached to a respective sidewall so that each handle can slide in a plane substantially parallel to said respective side wall between a first, load bearing position and a second, stowed position.

The movement of the handles between the load bearing position and stowed position by sliding in a plane parallel to

the side walls of the container mean no space is required around the container to deploy or stow the handles.

5 Preferably, at least some of the side walls have load bearing surfaces by which another container can be supported and the handles lie at the same levels as, or below, the load bearing surfaces when in the second, stowed position. This ensures that the handles allow one container to be placed on top of another and then slid into position, when in the stowed position.

10 Preferably, the handles are attached to the container so that each handle can pivot relative to the container when in the first, load bearing position. Such pivoting handles make it easier to move and carry the container.

15 Preferably, the handles can pivot from the first, load bearing, position into a third, support position which the handles can support another container. This allows the handles to form part of the load bearing surfaces of the container, providing additional support.

20 Preferably, the container has four side walls arranged substantially rectangularly in plan and has two handles respectively attached to two opposed side walls, each handle being arranged to lie across the container when in the third, support position so that it is supported by both of the walls to which neither handles is attached. This arrangement allows
25 the handles to provide maximum support.

30 Preferably, each handle comprises an elongate arm portion and a grip portion and further comprises a T-piece adjacent an end of the arm portion remote from the grip portion, the T-piece being slidably retained in two parallel slots formed in opposed surfaces forming a part of a respective side wall, each handle being removable between its first, load bearing position and its second, stowed position by the T-piece sliding along the slots.

35 Preferably, the container is a nestable stacking container or a 180° nestable stacking container.

Brief description of the drawings

Embodiments of the invention are illustrated by way of example only in the accompanying diagrammatic figures, in which:

5 Figure 1 shows the general arrangement of a container according to the invention with the handles in a load bearing position.

Figure 2 shows the container of Figure 1 with the handles in a stowed position.

10 Figure 3 shows the container of Figure 1 with the handles in a support position.

Figures 4a to 4d shows steps in assembly of the handles to the container; and

15 Figures 5a and 5b show details of the engagement of the handles in the support position.

Detailed description

Referring to Figures 1 to 3 a 180° nestable stacking container 1 is shown. The container 1 is rectangular in plan with an open top and has four side walls 2 to 5.

20 Each side wall 2 to 5 is substantially vertical and has an upper section and a lower section, horizontally displaced from one another and is connected by a respective horizontal joint section 2a to 5a. The lower sections of the side walls 2 to 5 are displaced relatively to the upper sections of the side walls 2 to 5 so that the lower section of the container 1 defined by the lower sections of the side walls 2 to 5 can fit within the upper section of an identical container 1 defined by the upper sections of the side walls 2 to 5.

30 A first pair of opposed side walls 2 and 3 each have a handle or bail arm 9 attached. The other pair of opposed side walls 4 and 5 bear support elements 7 and 8 respectively on their inner faces. The support elements 7 and 8 project

inwards from the respective walls 4 and 5 by the same amount and define support surfaces 7a and 8a respectively along their upper edges, which are at the same height as the upper edges of the side walls 2 to 5. The support elements 7 and 8 are arranged at different positions along their respective side walls 4 and 5.

The lower sections of side walls 4 and 5 have recesses and projections (not shown) on their outer surfaces arranged to cooperate with the support elements 7 and 8 of an identical container 1 so that when two identical containers 1 are stacked one on top of the other so that they overlies one another, when the two identical containers 1 are placed in a first orientation the support elements 7 and 8 of the lower container 1 fit within recesses in the outer surfaces of the lower wall sections 4 and 5 of the upper container 1 so that the lower section of the upper container 1 fits within the upper section of lower container 1 with the upper container supported by the connecting sections 2a to 5a of its side walls 2 to 5 resting upon the tops of the side walls 2 to 5 and support elements 7 to 8 of the lower container 1. If the containers are stacked in the opposite orientation, because the support elements 7 and 8 are arranged at different positions along their respective side walls the bottoms of the side walls 4 and 5 of the upper container 1 will bear on the supporting surfaces 7a and 8a on the top edges of the support elements 7 and 8 of the lower container 1.

Each handle 9 comprises an elongate grip section 9a attached to two elongate support elements 9b at first ends thereof. The second ends of the support elements 9b are attached to side walls 2 and 3, the support elements 9b of each handle 9 being attached to a respective one of the side walls 2 and 3.

The connection of the handles 9 to the side walls 2 and 3 is shown in detail in Figures 4.

As shown in figure 4d each support element 9b terminates in a T-piece 9c at its second end. The T-piece 9c has two cylindrical arms of equal length projecting collinearly on

opposite sides of the support element 9b. To cooperate with each support element 9b a respective pair of parallel spaced apart opposed vertical planar elements 10a and 10b each bearing a respective one of parallel slots 11a and 11b which are parallel to the supporting side wall are provided, attached to the side wall. A third vertical slot 12 is provided in the respective side wall 2, 3, between the two planar elements 10a and 10b. The separation of the planar elements 10a and 10b is less than the length of the T-piece 9c and the width of the slots 11a, 11b are slightly greater than the diameter of the cylindrical T-piece 9c so that the T-piece 9c is retained by, and can slide parallel to the plane of the respective side wall 2 and 3 along, the slots 11a and 11b.

The length of the slots 11a and 11b is arranged so that when the handle 9 is in a first, load bearing position as shown in figure 1 the T-piece 9c bears on the upper ends of the slots 11a and 11b so that the container 1 can be lifted by the handles 9 with the load being transmitted through the T-pieces 9c to the side walls 2 and 3. Handles 9 can be slid parallel to the walls 2 and 3 by sliding the respective T-pieces 9c along the slots 11a and 11b until the handles 9 are in a second, stowed position as shown in a figure 2 in which the handles are positioned below the upper surfaces of the side walls 2 to 5.

To support the planar elements 10a and 10b they are bridged and attached to the side walls 2 and 3 by planar horizontal elements 13a, 13b projecting from the side walls 2 and 3 and arranged above and below the slots 11a and 11b respectively. The upper horizontal element 13a bears a slot 14 perpendicular to the respective side wall 2, 3. The horizontal and vertical slots 12 and 14 both have a width which is sufficient to allow the elongate support element 9b of the handle 9 to pass therethrough. As a result, the slots 12 and 14 together with the cylindrical shape of the T-piece 9c allow the handle 9 to move pivotly when retained in the slots 11a and 11b. This pivoting makes the container 1 easier to carry using the handles 9 and allows the handles 9 to move pivotally into

the a third support position illustrated in figure 3 where the handles 9 lie across the open top of the container 1 bridging the side walls 4 and 5. Recesses 15 are provided in the upper edges of the support elements 7 and 8 to received the handles 9 so that the upper edges of the handles 9 lie flush with the upper edges of the side walls 2 to 5 and support elements 5 to 8.

Preferably, projections 16 are provided at the ends of the grip sections 9a of the handles 9 and co-operating recesses 17 are provided in the support elements 7 and 8 adjacent recesses 15 so that insertion of the projections 16 in recesses 17 locks the handles 9 to the support elements 7 and 8 so that the handles 9 cannot move relative to the support elements 7 and 8 perpendicularly to the side walls 4 and 5. This helps to increase the resistance of the container to torsional forces. Further, the projections 16 help to prevent the handles 9 slipping out of peoples grip in use.

Because the handles 9 do not project above the upper surfaces of the side walls 2 to 5 in either the stowed position or the bridging position the handles 9 do not interfere with sliding movement of containers one over another when they are being moved.

In order to form containers into a nesting stack it is of course essential that the handles 9 be placed in the stowed position. It is preferred that when containers 1 are being formed into a column the handles should be placed in the bridging position to provide additional protection to the contents of the containers 1. However, this is not essential and the containers 1 could be stacked into a column with the handles in the stowed position.

A preferred method of assembling the handles 9 to the container 1 is shown in Figures 4a to 4d. A further horizontal slot 18 sufficiently wide to accommodate the T-shaped elements 9c is formed in each of the upper horizontal elements 13a and substantially L-shaped elongate recesses 19a and 19b are formed on the opposed faces of the vertical planar elements 10a and 10b. Each recess 19a and 19b links a slot 16 with a one of

slots 11a and 11b. As shown in figures 4a and 4b, a T-piece 9c and a handle 9 is inserted into the slot 16 and the handle 9 is then slid downwards to move T-piece 9c down a first arm of the recess 19a, 19b. The handle 9 is then moved horizontally as shown in Figure 4c so as to move the T-piece 9c along the second arm of the recesses 19a and 19b and into the slots 11a and 11b.

Preferably, each handle 9 is unitarily made by plastics injection moulding and the body of each container 1 that is the four side walls 2 to 5 and the base, are also made unitarily by plastics injections moulding.

In the described embodiment the side walls 2 to 5 are described as being vertical. In practice it may be preferred to have the lower sections of each side wall 2 to 5 slightly inclined so that the lower section of the container is tapered in order to ensure that nested containers 1 can be easily separated. The upper sections of the side walls 2 to 5 need not be vertical. However, in practice vertical upper side walls are advantageous as they provide the most efficient shape for storage.

In the Figures the lower section of the container 1 is not shown in detail. It will be understood by the person skilled in the art that the lower section of the container 1 must be shaped to cooperate with the upper section of an identical container 1.

The described embodiment is a 180° nestable stacking container. The invention can also be applied to a nestable stacking container where the handles allow nesting when in the second position and column stacking with the upper container supported by the arms of the lower container when the arms are in the third position. In this case, the grip sections 9a of the handles should be extended to allow them to rest on the side walls 4 and 5 because the support elements 7 and 8 will not be required.

The above description is an example only and it will be clear to the person skilled in the art that the invention can be applied to alternative arrangements.

Claims

1. A container comprising at least two side walls and two handles, each handle being slidably attached to a respective sidewall so that each handle can slide in a plane substantially parallel to said respective side wall between a first, load bearing position and a second, stowed position.
2. A container as claimed in claim 1, in which at least some of the side walls have load bearing surfaces by which another container can be supported and the handles lie at the same level as or below, the load bearing surfaces when in the second, stowed position.
3. A container as claimed in claim 1 or claim 2, in which the handles are attached to the container so that each handle can pivot relative to the container when in the first, load bearing position.
4. A container as claimed in claim 3, in which the handles can pivot from the first, load bearing position into a third, support position in which the handles can support another container.
5. A container as claimed in claim 4, in which at least some of the side walls have load bearing surfaces by which another container can be supported and the handles lie at the same level as the load bearing surfaces when in the third, support position.
6. A container as claimed in claim 4 or claim 5, in which the container has four side walls arranged substantially rectangularly in plan and has two handles respectively attached to two opposed sidewalls, each handle being arranged to lie across the container when in the third support position so that it is supported by both of the walls to which neither handle is attached.
7. A container as claimed in any preceding claim, in which each handle comprises an elongate arm portion and a grip portion and further comprises a T-piece adjacent to an end of the arm portion remote from the grip portion, the T-piece being

slidably retained in two parallel slots formed in opposed surfaces forming a part of a respective side wall, each handle being movable between its first, load bearing position and its second, stowed position by the T-piece sliding along the slots.

8. A container as claimed in any preceding claim, in which the container is a nestable stacking container.

9. A container as claimed in claim 8, in which the container is a 180° nestable stacking container.

10. A container substantially as shown in or as described with reference to any one of the accompanying figures.



The Patent Office

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Application No: GB 9801105.9
Claims searched: 1 to 10

Examiner: Mike Henderson
Date of search: 9 April 1998

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.P): B8P (PN PS PU PH2)

Int CI (Ed.6): A45C 13/22 13/26 B65D 21/06 25/28 25/32

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2124588A (CRAYONNE LTD) (Whole disclosure relevant)	1 to 6,8 & 9
X	US 4095711 (CONLEY) (Whole disclosure relevant)	1 & 2
X	US 4054223 (MARQUES) (Col 3 lines 28 - 32 particularly relevant)	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.